CLAIMS

1.A biochip for detecting a small molecule compound comprising a solid support and a conjugate of a carrier and a small molecule compound, wherein the conjugate is immobilized on a surface of the solid support.

2.The biochip of claim 1, wherein the small molecule compound has a molecular weight ranging from 1 to 10,000 daltons.

3.The biochip of claim 1, wherein a plurality of conjugates are immobilized on the solid support to form a two-dimensional array.

4.The biochip of claim 1, wherein the small molecule compound is a veterinary drug selected from the group consisting of enrofloxacin, furantoin, furacilin, furazolidone, ciprofloxacin, sulfadimidine, sulfamethoxydiazine, sulfamethazine, sulfadimoxinum, sulfamethoxazole, sulfamerazine, sulfamethoxypyridazine, sulfamonomethoxine, sulfaquinoxaline, sulfadiazine, sulfathiazole, chlortetracycyline, clenbuterol, streptomycin, chloramphenicol, norfloxacin, difloxacin, dihydrostreptomycin, tetracycline, oxytetracycyline, digoxin, aflatoxins, kanamycin, mercaptoethanol, penicillins, gentamicin, vancomycin, neomycin, salinomycin, dienestrol, diethylstilbestrol, carbadox, and clopidol.

5.The biochip of claim 1, wherein the small molecule compound is a prohibited substance selected from the group consisting of amphetamine, benzoylecgonine, phencyclindine, theophylline, barbiturate methadone, benzodizepine, morphine, tricyclic antidepressant, gentamicin, digoxin, estradiol, tobramycin.

6.The biochip of claim 1, wherein the carrier is a protein selected from the group consisting of human serum albumin (HSA), bovine serum albumin (BSA), keyhole limpet hemocyanin (KLH), and ovabumin (OVA).

7.The biochip of claim 1, further comprising a control immobilized on the surface of the solid support, wherein the control is selected from the group consisting of a blank control, a negative control, a sample preparation control, an immobilization control, and a data normalization control.

8.The biochip of claim 1, further comprising a blank control, a negative control, a sample preparation control, an immobilization control, and a data normalization control immobilized on the surface of the solid support.

9.The biochip of claim 1, wherein the solid support is selected from the group consisting of ceramic, glass, silica, quartz, nylon, plastic, polystyrene, nitrocellulose, and metal.

10.A method of making a biochip for detecting a small molecule compound, said method comprising:

linking a small molecule compound to be detected to a carrier to form a conjugate;

spotting the conjugate onto a chemically modified surface of a solid support; and

drying the spotted solid support.

11.A method for detecting a small molecule compound in a sample, said method comprising:

incubating the biochip of claim 1 with a sample and a binding molecule that specifically binds to the small molecule compound under conditions suitable for specific binding of the binding molecule to the small molecule compound;

detecting binding of the binding molecule to the small molecule compound in the conjugate immobilized on the surface of the biochip, whereby the presence or absence or the quantity of the small molecule compound in the sample is detected.

12.The method of claim 11, wherein the biochip is incubated in a blocking solution before step a).

13.The method of claim 11, wherein the biochip in step a) is incubated with a mixture of the sample and the binding molecule.

14.The method of claim 11, wherein the biochip in step a) is first incubated with the sample and then incubated with the binding molecule.

15.The method of claim 11, wherein the biochip in step a) is first incubated with the binding molecule and then incubated with the sample.

16.The method of claim 11, further comprising a step of comparing the binding of the binding molecule to the small molecule compound in the conjugate immobilized on the

surface of the biochip to binding of the binding molecule to a control immobilized on the surface of the biochip.

17.The method of claim 16, wherein the control is selected from the group consisting of a blank control, a negative control, a sample preparation control, an immobilization control, and a data normalization control.

18.The method of claim 11, wherein the binding molecule is an antibody or a polymer.

19.The method of claim 11, wherein the binding molecule is linked to a label, and binding of the binding molecule to the small molecule compound in the conjugate immobilized on the surface of the biochip is detected by detecting the presence or absence or quantity of the label on the biochip.

20.The method of claim 19, wherein the label is a molecule selected from the group consisting of a fluorescent, an enzymatic, a biotin, a radioactive, and a luminescent label.

21.The method of claim 11, said method further comprises a step of incubating the biochip with a secondary antibody that specifically binds to the binding molecule, and the binding of the binding molecule to the small molecule compound in the conjugate immobilized on the surface of the biochip is detected by detecting binding of the secondary antibody.

22.The method of claim 21, wherein the secondary antibody is linked to a label, and binding of the secondary antibody to the binding molecule is detected by detecting the presence or absence or quantity of the label on the biochip.

23.The method of claim 11, wherein the method is used for detecting residual veterinary drug in farm animals.

24.The method of claim 11, wherein the method is used for doping agents testing.

25.A kit for detecting a small molecule compound in a sample, said kit comprising a biochip and a binding molecule that specifically binds to the small molecule compound, wherein the biochip comprises a solid support and a conjugate of a carrier and a small molecule compound, wherein the conjugate is immobilized on a surface of the solid support.